ABSTRACT OF THE DISCLOSURE

A liquid crystal optical element includes: first and second substrates; a liquid crystal layer provided between the substrates; first and second electrode layers provided on the first and second substrates, respectively, so as to face each other with the liquid crystal layer interposed between them; and first and second switching layers, which are provided between the first electrode layer and the liquid crystal layer and between the second electrode layer and the liquid crystal layer, respectively, and each of which includes molecules changing their orientation directions in response to a voltage applied between the first and second electrode layers. The liquid crystal layer changes its orientation state as the molecules in the first and second switching layers change their orientation directions. Each of the molecules included in one of the first and second switching layers and an associated one of the molecules included in the other switching layer behave as enantiomers.